**University,**

**Faculty of Engineering,**

**Post Graduate Studies and Research.**

Menoufiya University

Faculty of Engineering

***COURSE SPECIFICATION***

***Course Title:*** ***Jigs and fixtures***

***Course Code:*** ***PRE 510***

***Department Offering the Course:*** **Production Engineering & Mechanical Design**

***Last Date of Approval:*** **2012**

***B- PROFESSIONAL INFORMATION:***

***A- COURSE IDENTIFICATION AND INFORMATION:***

**B.1.*Description as in Post Graduate Studies Bulletin:***

Basic general design – Design procedures – Principles of location and clamping and their

types – Indexing – Standard elements – milling – turning – broaching - ….) –

Manufacturing and economy of jigs and fixtures.

**B.2.*Course Objectives:***

The objective of this course is to build the capacities of the students to conduct quantitative

research through application of statistics to test the validity of a hypothesis. Targets

includes, but not limited to:

1. Demonstration of the knowledge and understanding the basic concepts of jigs and

fixtures design

2. Definition of the requirements of jigs and fixtures tools .

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| Field | Programme ILOs that the course  contribute in achieving | Course ILOs |
| Knowledge&  Understanding | a3.    Know    requirements    for    safe  operation and conservation of the  environment. | a.3.1. Define the basic concepts of  jigs    and    fixtures        and    their  applications on mass production |
| a4. Understand the moral and legal  principles of professional practice in  production engineering. | a4.1. Identify and analyze the  different trouble causes on process  to take the required corrective  action. |
| Intellectual  skills | b1. Identify and analyze problems in  the area of production engineering  specialization and rank the results  according to their priorities. | b.1.1. Create solutions for various  engineering topics related to  jigs and fixtures for machine  tools      to      reduce      mass  production cost and time. |
| b5. Make career decisions in the light  of available production engineering  information.. | b5.1.Formulate and create suitable  solutions to represent the best  design of jigs and fixtures taking in  consideration cost , time, quality  and industrial safety of production  process |
| Professional  skills | c1. Apply the professional production  engineering technologies in the field  of specialization. | c.1.1. Demonstrate some suitable  solutions     to     reduce     cost     of  products by applying professional  production                      engineering  technologies .  . |
| c2.    Write    professional    production  engineering reports. | c.2.1. Write         and         evaluate  professional         reports         about  novel points |
| General skills | d1. Effectively communicate all kinds  and    sharing    ideas    with    different | d.1.1. Share the students to design  questionnaires that collect data |

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| Field | National Academic Reference Standard(NARS) | | | |
| Knowledge &  Understanding | Intellectual  Skills | Professional  Skills | General Skills |
| Programme Academic  Standards that the course  contribute in achieving | a3, a4 | b1, b5 | c1,c2 | d1, d4 |



3. Realizing of the different types of jigs and fixtures suitable for different machining

operations.

4. Understand terminology used in jigs and fixtures design

***B.3. Relationship between the course and the programe***

**B.4.*Intended Learning Outcomes (ILOs)***

|  |  |  |
| --- | --- | --- |
| **Week**  **No.** | **Contents** | **ILOs covered by**  **this topic** |
| 1 | Introduction to jigs and fixtures design | a3.1, a4.1**,** c1.1,c2.1**,**  d1.1, d4.1 |
| 2 | Basic general design and design procedures | a3.1, a4.1**,** b1.1, b5.1**,**  c1.1d4.1 |
| 3 | Basic general design and design procedures | a3.1, b1.1, b5.1**,**  c1.1, d4.1 |
| 4 | Basic general design and design procedures | b1.1, b5.1**,** c1.1,c2.1**,**  d1.1, d4.1 |
| 5 | Principles of location and clamping and their types | a3.1, b1.1, b5.1**,**  c1.1,c2.1**,** d4.1 |
| 6 | Principles of location and clamping and their types | a3.1, a4.1**,** b5.1**,** c2.1**,**  d1.1, d4.1 |
| 7 | Principles of location and clamping and their types | a3.1, a4.1**,** b5.1**,**  c1.1,c2.1**,** d4.1 |
| 8 | Indexing and standard elements | b5.1**,** c1.1,c2.1**,** d1.1,  d4.1 |
| 9 | Indexing and standard elements | a3.1, a4.1**,** b1.1, b5.1**,**  c1.1,c2.1**,** d4.1 |
| 10 | Indexing and standard elements | a3.1, a4.1**,** b1.1,  d1.1, d4.1 |
| 11 | Applications of jigs and fixtures on different machining processes  such as milling | a3.1, a4.1**,** b1.1, b5.1**,**  c1.1,c2.1**,** d1.1, d4.1 |
| 12 | Applications of jigs and fixtures on different machining processes  such as milling | a3.1, a4.1**,** b1.1,  c1.1,c2.1**,** d1.1, d4.1 |
| 13 | Applications of jigs and fixtures on different machining processes  such as milling | a3.1, b5.1**,** c1.1,c2.1**,**  d1.1, d4.1 |
| 14 | Manufacturing and economy of jigs and fixtures | a3.1, a4.1**,** b1.1, b5.1**,**  d4.1 |
| 15 | Manufacturing and economy of jigs and fixtures | a3.1, a4.1**,** b1.1, b5.1**,**  d4.1 |

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| Field | Programme ILOs that the course  contribute in achieving | Course ILOs |
|  | relevant teams. | efficiently. |
| d4. Use of different sources for  information knowledge | d.4.1.    Improve    the    ability    of  students    to use different sources  for information knowledge |

**B. 6.*Teaching and Learning Methods:***

**B.5.*Syllabus to be Covered:***

|  |  |
| --- | --- |
| **Mid-Term Examination** | -**%** |
| **Final-Term Examination** | **100 %** |
| **Oral Examination** | -**%** |
| **Practical Examination** | -**%** |
| **Semester Work** | -**%** |
| **Other Types of Assessment** | -**%** |
| **Total** | **100 %** |

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| **No.** | **Teaching and Learning**  **Methods** | **To Assess Course**  **ILOs Item No.** | **To Assess (ARSEP) Outcomes**  **No.** |
| 1 | Assignments and  Exercises | a3, a4**,** b1, b5**,** c1,c2**,** d1,  d4 | a3, a4**,** b1, b5**,** c1,c2**,** d1, d4 |

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| **No.** | **Assessment methods** | **To Assess Course**  **ILOs Item No.** | **To Assess (ARSEP) Outcomes**  **No.** |
| 1 | Written exam | a3, a4**,** b1, b5**,** c1,c2**,**  d1, d4 | a3, a4**,** b1, b5**,** c1,c2**,** d1, d4 |

**B. 7.*Assessments:***

**B.8.*List of References:***

***Student assessment methods:***

***Weighting of assessments:***

***Essential books (text books):***

-P H Joshi, " Machine Tools Hand book Design and Operation", Copyright C,

2007,Tata MacGraw Hill Publishing Company Limited

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***Periodicals, Web sites, Course notes, etc:***

**B. 9.*Facilities Required for Teaching and Learning:***

Indicate requirements for the course including size of classrooms and laboratories (i.e.; classrooms

and laboratories, extent of computer access, etc.).

1. Computers with MS Office (Excel) and SPSS or any other statistical package for social

statistics.

2. A lecture room with LCD or show

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**Course coordinator**

**Prof. Dr. Mahmoud Hewedi**

**Head of Dept.**

Prof. Taha El-Taweel

**Date--** 5 Feb. 2012